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Order 3.—*Alcyonaria.*

Polypes with eight fringed tentacula. Always aggregated. Never locomotive.

Order 4.—*Ctenophora.*

Oceanic, free-swimming, transparent, gelatinous Actinozoa, moving by means of vertical rows of ciliated plates.

The author further remarked that the above classification differed more in appearance than in reality from the arrangements of other naturalists. The Hydromedusidæ of Vogt contained all the forms included among the Hydrozoa, as above defined, with the sole exception of the genus Lucernaria. The Acalephæ of Agassiz and Milne-Edwards may be regarded as equivalent to the Hydromedusidæ of Vogt, together with the order Ctenophora. The slowness of zoologists to recognise the true affinities of the last-mentioned group offers, at present, almost the only obstacle to the diffusion of sound views in reference to the subjects discussed in the foregoing paper.

The following antiquities were presented to the Museum:—

By Frederick Grome, Esq.:—A curious bone pin, found in a field between Miltown and Newbridge, county of Kildare, with an iron dagger, and the skeletons of a man and horse; also two encaustic tiles found at Great Connell Abbey, county of Kildare.

By Aquilla Smith, M.D.:—An impression of a seal in the muniment room of the Corporation of the city of Dublin, the legend being "Sigillum Thomæ Cros Custodis le Presonarum."

By Mr. John Evans:—A human skull found built up in a cavity of the wall of Newgate prison, Dublin.

The following Resolution, recommended by the Council, viz.:—"To open a subscription for the purpose of completing the Catalogue of the Museum," having been put by the Chairman—

It was moved—"That the Academy do now adjourn."

A division having taken place, the Chairman declared that the amendment had been carried, and the Academy adjourned accordingly.

MONDAY, FEBRUARY 28, 1859.

James Henthorn Todd, D.D., President, in the Chair.

The Secretary of the Academy announced that a collection of Irish antiquities belonging to the Royal Dublin Society had been deposited in the Academy for exhibition, and that the President had signed a receipt for them in the following terms:—"That each article exhibited shall be labelled as the property of the Royal Dublin Society, and with the name of the donor, in case such can be ascertained; and that the said specimens shall be preserved with equal care as if they were the property of the Royal Irish Academy; and that they shall be returned whenever they are demanded by the said Royal Dublin Society; and if the said seventy-nine specimens be not returned, on being so demanded by the said Royal Dublin Society, then the said Royal Irish Academy shall forfeit the sum of one hundred pounds sterling;"—whereupon it was—

Resolved—"That the act of the President and Council in accepting this loan of antiquities from the Royal Dublin Society be ratified by the Academy, according to the terms of the receipt signed by the President."

The President having ruled that the vote of adjournment of the Academy at its last meeting had the effect only of postponing the discussion of the recommendation of the Council passed at their meeting of 7th February, 1859, viz.:—"That a subscription be opened for the purpose of completing the Catalogue of the Museum,"—the discussion was resumed accordingly, and on a division the proposition of the Council was adopted by a majority of four, the numbers being—15 for the Resolution, and 11 against it.

The Secretary of the Academy read a letter from W. R. Wilde, Esq., on the subject of the preparation of the Catalogue;—whereupon it was—

Moved by J. F. Waller, LL. D., and seconded by the Rev. Charles Graves, and resolved:—"That Mr. Wilde's letter be referred to the Council, with a view to its being entered on the Minutes of the Academy."

SIR WILLIAM ROWAN HAMILTON, LL. D., communicated the following paper:—

ON SOME QUATERNION EQUATIONS CONNECTED WITH FRESNEL'S WAVE-SURFACE FOR BIAXAL CRYSTALS.

1. THE ellipsoid of which the three semi-axes are usually denoted as a, b, c, in statements of the Fresnelian theory of the wave-surface in a biaxal crystal, being here represented by the equation,

$$S\rho\phi\rho = 1,$$

where the vector function ϕ has the distributive and other properties described by Sir W. R. H., in his Seventh Lecture on Quaternions, it follows from the physical principles, or hypotheses, of Fresnel, that a small displacement, $\delta\rho$, of a molecule of the ether in a crystal, gives rise to an elastic force, which may be denoted by $\phi^{-1}\,\delta\rho$. But if this displacement, $\delta\rho$, be (as is assumed) tangential to a wave-front in the medium, to which the vector μ is normal, and of which the tensor $T\mu$ denotes the slowness of propagation, so that μ may be called the INDEX-VECTOR, then the tangential component of the elastic force must admit of being represented by $\mu^{-2}\,\delta\rho$. Hence the normal component of the same force (supposed by Fresnel to be destroyed by the incompressibility of the ether) must admit of being denoted by the symbol,

$$(\phi^{-1} - \mu^{-2})\,\delta\rho;$$

which symbol must, therefore, admit of being equated to a vector of the form $\mu^{-1}\,\delta m$, δm being a small scalar. We are, therefore, at liberty to write the following symbolical expression for the displacement supposed by Fresnel to exist:

$$\delta\rho = (\phi^{-1} - \mu^{-2})^{-1}\,\mu^{-1}\,\delta m.$$